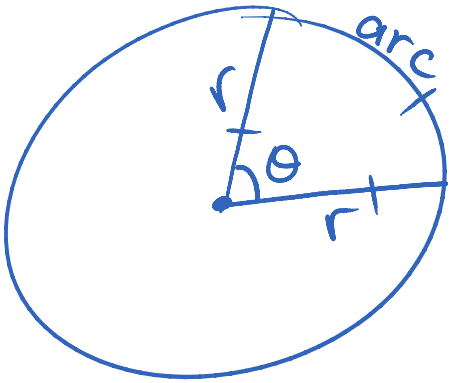
§8.1 Understanding Angles pg 514

Monday, January 06, 2014
9:28 AM

Radian = the measure of the central angle of a circle when the radius equals the length of the arc along the circle

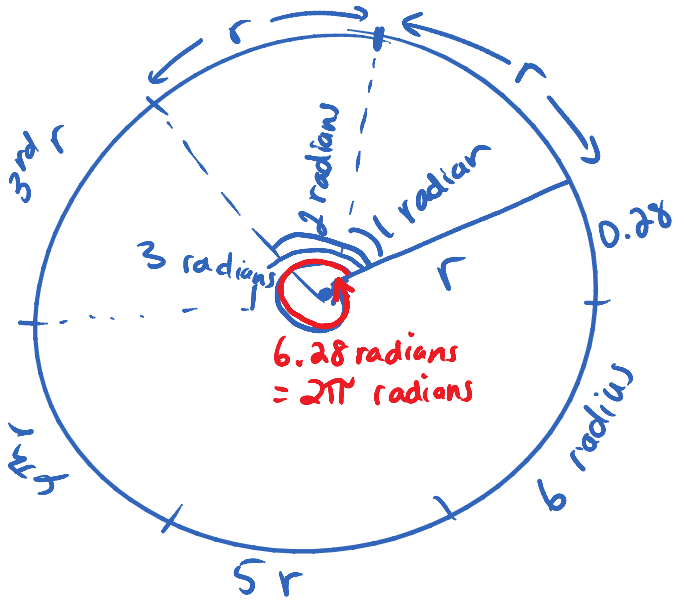


θ = 1 radian

Circle circumference $C = 2\pi r$

SO...

How many times does radius go around a circle? 2π times



⇒ 2π radians = 360°

2π radians and 360° are both the angle all the way around the circle

SO: 2π radians = 360°

π radians = 180°

$$1 = \frac{180^\circ}{\pi \text{ radians}}$$ conversion factor

Examples:

How many degrees is 3 radians?

$$3 \text{ radian} \times \frac{180^\circ}{\pi \text{ radians}} = \frac{3 \cdot 180^\circ}{\pi} = 172^\circ$$

How many radians are in 25 degrees?

$$25^\circ \times \frac{\pi \text{ radians}}{180^\circ} = \frac{25 \cdot \pi}{180} \text{ radians} = 0.44 \text{ radians}$$

✡ degrees and radians are just different units used for angles.

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$$3\pi \text{ rad} \cdot \frac{180^\circ}{\pi \text{ radians}} = 540^\circ$$

$$8 \text{ radians} \cdot \frac{180^\circ}{\pi \text{ radian}} =$$

Practice pg 519 #1-3, 6, 7